# THE Chemist

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# The Chemist

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# Merits of the Metric System

**Hilton Ira Jones, F.A.I.C.**

"HOW much is this tie, sir?" I asked a London clothier. "Two and six," he answered. I gave him a five-pound note. How much change should I have received? You don't know, neither did I, and because it would have taken me several minutes with pencil and paper to figure it out, same as you, I took what he gave me, and to this day I am not sure whether he shortchanged me or not. I have a sneaking feeling that he did, at least I know London cabbies do. They know a foreigner used to decimal currency can not fathom the mysteries of English money.

Down in La Paz, Bolivia, a wealthy rubber grower was looking over a Sears-Roebuck catalogue and one of a German house. He finally ordered his stuff from the German Company at a higher price, not counting the freight. "Why did you buy from Germany" he was asked, "when the United States is closer?" "Simply because the crazy yards and sizes those merchants up there have are a regular Chinese puzzle to us folks. I would rather pay more money and know what I am going to get." My London experience made me sympathize. Anyone who has ever bought land in Texas where they still have the old Spanish measures, leagues, and varas, and tried to figure out from the description how much land he really has, must know how he felt.

### Exports Retarded

We have spent a lot of money on a Panama Canal and we are probably the main force in maintaining the Pan-American Union. Both of these things are fine but we have never received from them half the benefit we should. Before the war we allowed South American trade, properly ours, to go to Germany just because we alienate ourselves from South America through ignorance of language and custom but still more through this crazy, irrational, antiquated system of weights and measures which we inherited from Mother England. It does us more harm in South America than our Canal and Union do good. That is the supreme reason why the imports of Bolivia showed

$765,267 from Germany and only $126,966 from the United States. And unless our system is changed, Germany or some other country with the metric system will pick up that trade after the war just as surely as they had it before.

The duty and opportunity which the United States hold in South America is the supreme reason why we should adopt the metric system at once, as one of the changes brought by the war. The war has completely ruined Germany's South American trade. Our boys abroad are giving us a free field but we must enter it sympathetically and with understanding and should not allow our commerce to be hobbled by our present system of weights and measures.

**Mental Inertia Blocks Change**

There is but one valid reason against the adoption of the metric system and that is the same one that worked its defeat by one vote at the time of the adoption of our decimal money system, back at the time when our Government was founded, and that is, we are lazy. If we adopted it we would have to learn it. Our mental inertia resists the change. We are so human. The whole universe, mental and physical, resists the new.

Whenever a new movement is initiated, whether it be electrical, social, chemical, political, or simply the cut of a dress or the hang of a skirt, it encounters opposition. All the stand-patters rise up and pitch bricks at it. It is this inertia that maintains the equilibrium of the world, and prevents electrical perpetual motion. It is a fine thing if not allowed to "stiddy" us so much that we can not move at all. That is the danger now. Yes, we should all have to learn it. To be sure the schools in most States, under legal compulsion, have been teaching the metric system for years and most of us at one time or another have been able to say:

"Ten millimeters, one centimeter
Ten centimeters, one decimeter
Ten decimeters, one meter."

with just about as much intelligence as though it were a prayer in Sanskrit.

**On Learning System**

No system of weights and measures can really be learned out of a book any more than a language can. The only way to learn it is to live with it, learn it by contact. Of course, the idea that we now know the "English system" is a pure myth. How many cubic inches in a quart? "58.75," responds the knowing one. "Correct," says the teacher. "Which quart is this, wet or dry measure? Will you please answer?" Don't all speak at once. An extensive canvass has shown that not five per cent of the people have even a fair knowledge of our present system of weights and measures. Don't you

remember how this denominate numbers stuff just drove you mad when you studied arithmetic in school?

The metric system was produced at the time of the French Revolution by the best scientists in France. It took long and careful work to perfect it. It was so flawless when first submitted and adopted that there have never been any changes in it since, and it has been exclusively adopted by the entire scientific world and practically all the civilized countries of the globe and by a lot of them that would have to hustle to get into that category.

**Our System 'Just Growed'**

But our present system that holds us down like a millstone around our necks, like Topsy "just growed." It is without rhyme or reason. The foot was at first supposed to be the length of the foot of Hercules. Later it was the king's foot. A new king a new foot. The inch was the length between the first and second joints of the mid-finger of the king's right hand. The yard was the length of the king's right arm. They, too, changed with the monarch. Finally King James, of Biblical fame, got his arm, foot and joint length established by action of Parliment as the final and official English measures.

John, that king whose name England has never repeated lest it revive unpleasant memories, one day cut a staff or "rood" out of the swamp and used it to measure things and established it as the official rod. It happened not to be a multiple of his foot length, but that was small matter. It has stuck. Think of the mental strain, paper and pencil he could have saved the world by cutting that old stick off so as to make the rod an even fifteen feet. Kings, kings, kings! A fine sort of way for a republic to get its weights and measures!

The metric system—and remember it is really a system—was born of the blood of the French Republic! The parts of our crazy quilt, which we call a system by exquisite courtesy, fit each other just as we might expect the parts of a thing to fit, when each one of which was made by a different person, no one in particular, and just sort of grew up out of the dark, piece by piece, through the centuries. Whenever we say mile or bushel or quart or pound or anything else in our system, we must, if we would be exact, inquire, "Which one?" The names are never explicit.

**Troy, Apothecary, Avoirdupois**

In a wholesale drug house in Boston we used troy, apothecary, avoirdupois, and metric all side by side. Sage bought by the hundred, avoirdupois, was sold by the ounce, apothecary. The prescriptions divided honors between apothecary and metric systems almost equally. They called it a drug house and the

mathematical combinations we had to work were enough to drive you to drugs. Some system! Our fathers used it and they are all dead. We were raised on it and will have none other.

**Germans Use Metric System**

Germany has the metric system, but she had to fight to get it. If there are any individuals more set in their ways than the old German dyers, I have not yet met them. They learned their rule-of-thumb processes from others of their kind and used a thermometer called the Reaumur, which had zero for freezing and eighty for boiling water. Now the Centigrade thermometer is a part and parcel of the metric system, and Germany has taxed the production of Reaumur thermometers ever since the adoption of the Centigrade and yet many Reaumurs are still used in spite of the tax of over three dollars each.

**Fahrenheit Thermometer**

I suppose we should have the same sort of difficulty with our Fahrenheit theremometer, which is crazier, if possible, than the Reaumur. An old German by the name of Fahrenheit, living in England, knowing that powdered ice and salt got very cold, foolishly thought it was the lowest obtainable temperature, or ultimate zero, and so fixed the zero on his scale at this point. What a shock it would have been if he had known the temperature of solid helium, 389.4 degrees below his "ultimate zero" and still at least some ten degrees above absolute zero. How he got his 212 degrees for boiling water he died without revealing.

Still a lot of folks will try nothing and hold fast to the old—valiant champions of a dying cause—just as thousands of farmers refuse to change their clocks because they know they are right and I suppose that when the country comes back to their time it will vindicate their position, just as Passe Partout in Verne's "Tour of the World in Eighty Days," refused to change his watch as he toured around the world and was delirious with joy when he got back home and found his watch was still right.

**Pfund and Zenter**

Germany never has been able to get rid of the Pfund and Zenter but she worked a clever ruse. She changed slightly the value of the Pfund and made it equal to 500 metric grams and it does little harm to let the word stick, so long as it is half a kilogram. We could do the same thing if it would make the change any easier. 2.2 pounds avoirdupois equal a kilogram and 2.200 pounds is a metric ton and "long ton."

The word "pound" could be retained if it were increased one-tenth in value, then its value would be half a kilogram. Likewise the meter

might also be called a yard. There are 39.37 inches in a meter so the change would not be great. Of course, the decimal subdivisions would have to entirely displace the inch and the foot, as its decimal character is one of the outstanding advantages of the metric system.

**English and American Money**

Contrast the ease of figuring the English and American money. How much is a four mill tax on $10,000? How much is a "ha' pence" tax on 2,000 pounds? There is even a greater difference in the English and metric weights and measures. The one consists in multiplying or dividing by 12, 16½, 231, 1,728 and other such classics; the other in sliding the decimal point to the right or left.

The metric system could be thoroughly learned in the schools in one-tenth the time the children now put on the present system, which they do not begin to master. Educators have argued learnedly and long for the adoption of the metric system, if for this reason alone. The teaching of arithmetic could be shortened by a fifth. Nothing can be said to add to the many excellent articles already written on this subject. The United States and Great Britain have long considered themselves the leaders of the world, and yet we are the only two nations claiming to be civilized, according to Western standards, who do not have the metric system. We send missionaries to Borneo, Siam, Madagascar and South America, but they all have the metric system.

**Our Weights Lack Correlation**

Our present weights and measures wholly lack any correlation of the several parts, a thing so perfect in the metric system. Take for example the weight, dimensional and volume relations in these two analogous problems. A can holds four and one half pounds of water, what is the volume in quarts? The solution is obtained in the following figures:

$$\frac{4.5}{62.5} \times \frac{1728}{58.75} = \text{Answer}$$

In order to obtain these you are forced to reemember that a cubic foot of water weighs 62.5 pounds, that there are 1,728 cubic inches in a cubic foot and 58.75 cubic inches in a quart. How would a South American get on in solving such a problem.

In the metric system the corresponding problem has no mathematical problem at all for the weight in kilograms is the volume in liters. The fact that a cubic meter of water weighs a metric tonne; a liter, a kilogram; and a cubic centimeter, a gram, gives at once the volume and weight of any vessel of water if its dimensions are known; or its cubical dimensions if the weight is

known. If the liquid is any other than water, simple multiplication by its specific gravity, gives the same results.

### Commercial Handicaps

Such a system as ours offers mighty commercial handicaps, in dealing with any nation save Great Britian, which it takes a lot of other excellencies to overcome. This is especially important in the case of South American nations where the average education is not so high. And they are precisely the people of greatest commercial importance to us, especially now. It is bad business to be queer, when your queerness causes your customers a lot of distasteful work which they avoid by trading with your competitors.

Even in the interstate relations and commerce we suffer. These bushels and things are not determined by congressional action, but each State has its own peculiar sort and they are far from uniform in the several States. A bushel of salt in Kentucky is by no means a bushel in Pennsylvania. Between the United States and British weights and measures, there are even greater differences. All sorts of things constitute a pound but a kilogram is forever the same the world over. The bushel may vary but the liter never does.

### Cost of Changing System

"Yes, I know," said a farmer to me, "but think of all the millions of dollars that would be wasted in making this change. Why, every scale in the United States would have to be thrown away." Strangely enough that seems to be the popular impression. It is utterly false. Simply the weights and the graduation plate on the beam would need to be changed. The expense would be trifling. It would be met by the saving in lead pencils alone in five years.

The metric system has always been the standard in the United States. A yard has always been officially defined as a certain fraction of a meter, the pound as a fraction of a kilogram. A long, forward step was taken a short while ago when the Government bureaus decided that all weights and measures in Government bulletins should be given in metric measures as well as in the old system. This was a great satisfaction to the scientific men of the country who have never used anything other than the metric system, and centigrade thermometer.

Again and again the pharmaceutical associations of the country have resolved to urge that all prescriptions and formulas be given in metric measures. Its universal adoption is rapidly coming. The *United States Pharmacopeia* has long been in the metric system. Most intelligent people now have at least a

working knowledge of the system and thousands of our people know it very much better than they do the English system.

**Change Should Be Made Now**

The present seems preeminently the time when this change in our system of weights and measures should be made. Our export trade has in time past been sadly handicapped by the lack of a merchant marine. Statesmen and business organizations have threatened, pleaded and prayed for an American merchant marine, particularly because of our South American relations, but all in vain. Now the holocaust of war has given us a by-product of the greatest merchant marine in all the world and the wonder of it is that it is Government owned.

The colossal development of our foreign trade should be an outstanding feature of the after-the-war reconstruction days. Surely we should not insanely cling to an obsolete system that will hold us back from the things we could otherwise do. When our soldier boys come home they will have learned the metric system more or less thoroughly and have also acquired a great love and admiration for the things of the lands of our Allies. Our patriotism and hope for American commerce, our love for France and her system and our own sane business judgment all combine in urging the adoption of the metric system at this time.

**Argument Against Change**

The common argument against the change at this time is that things are in enough of a state of turmoil without adding a sweeping innovation to make matters worse. "Better wait until things settle down a bit." This psychology is in error. People are creatures of habit. The best time to sell bonds is when people are in the habit of buying them. Each succeeding issue has sold better than the former. The best time to get donations for the Red Cross and other forms of war work is when the people are in the habit of giving to such things. The inertia that prevents change becomes momentum when changes are once started. This fact gives rise to the excesses of revolutionists.

The psychologically correct time to make a change as the one we advocate is when people are already educated to changes. It was at such a time that France introduced the metric system. And surely we are more accustomed to changes now that we ever were. Never have so many radical innovations been packed into so short a time. Almost within a year the Government has taken control of the railroads, telegraph, telephone, essential industries, priority control of nearly everything from building materials to freight shipments, has entered

upon an elaborate system of price fixing, has arbitrarily shifted the time of the nation forward and has controlled the national fuel distribution and production and most remarkable of all has even dictated what and how much we might eat. The wildest socialistic dreams have never equalled the actual achievements of the time.

Folks are a lot like animals in that they object to having anyone disturb their food. They will stand nearly anything else better. Hoover essayed the impossible, when in World War I, he attempted food administration in America. The change to the metric system would be nothing compared to that. The wonder is he actually put it across. Its accomplishment was possible solely because it was put on a voluntary patriotic basis. Hoover led instead of drove. It will be one of the wonders of governmental administration in a republic. The fact that these things have been done and people are now educated in the possibilities of united patriotic action, makes the present most auspicious for the adoption of the metric system.

**U. S. Adoption Patriotic Duty**

Its adoption is a great patriotic duty. The change can not be made in a day. It will take time to get the system working, but some date should be set at which it will go into compulsory effect. If all things going into interstate and export commerce, both commodities and catalogs, were forced to be in the metric system as well as all government rulings, publications and the like, and all States urged to adopt similar laws governing their state affairs, the change to the new system could be accomplished in a short time, especially so if its use were made a patriotic measure, as it really is. Any one using the old system would soon be tabooed.

Germany adopted the metric system in the face of great opposition because it was recommended by the scientists of that country. If a vote were taken of all the people in the United States who have expert knowledge of the subject, the vote would be in favor of the immediate change to the metric system by a majority of at least ninety-nine to one. The argument of one man who favors the metric system because he has used both systems and knows them well, ought to outweigh the opposition of many whose only ground for objection is that they know nothing about the new system. German science and industry have surpassed that of the United States only in the perfection of their organization. Germany adopted the metric system because of the commercial advantage it would give her. Is American mental laziness to be our worst enemy in South America, while Germany is

allowed once more to reap a commercial harvest from the fields we neglect?

The adoption of the metric system is coming. A few uninformed senators may be able to delay its arrival but they can not change the final outcome. Everything points to the present as the supremely advantageous hour to make the move. Economy, science and commerce all demand it. If eventually, why not now?

# Leather Research Points to Postwar Markets

**Robert M. Lollar and Fred O'Flaherty**

*Department of Applied Science in Tanning Research Foundation, Tanners' Council of America, Institute of Scientific Research, University of Cincinnati, Cincinnati, Ohio.*

LEATHER is the resultant of the application to animal skins and hides of various chemical and physical processes which renders these labile animal integuments more resistant to the deteriorating action of water, elevated temperatures, physical wear, and microbiological attack. To the average citizen, leather means wallets, brief cases, gloves, upholstery, shoes, and a host of other conveniences of modern life. To the armed forces, leather is a basic, essential sinew of global warfare.

Scientific tanning processes combined with the natural properties of the complex fiber structure of the skins and hides yield a tough, durable, flexible, adaptable, versatile product of utility.

The varied conditions of modern world-wide warfare have imposed severe, abnormal demands upon all materiel including leather goods. For this reason, leather, along with other materiel, has been the subject of considerable scientific study to increase its utility. A brief consideration of some of the various phases of leather chemistry which have been studied recently will illustrate the importance of scientific research in the leather industry.

The character of the final product, especially lighter weight leathers, is materially influenced by the "opening up" of the skin prior to tannage. The leather-forming protein fibers are chemically collagen. Around the complex weave of collagen fibers of the native skin one finds coagulable proteins which the tanner should remove for optimum results. A fiber structure which is poorly opened up does not

take up the tanning agents or oils properly; however, damage to the collagen fibers must be avoided.

It has been found that poly-valent anionic salts, especially sodium polysulfide, are very efficient in a safe removal of these coagulable proteins, and also aid in the processing of very dry skins. Thus, better utilization can be made of the available skin supply, with the resultant production of leather of greater serviceability.

The sources of tanning agents, or the raw materiels thereof, for both chrome and vegetable tannage are as world-wide as our global battle-fronts. Consequently, in these days of interrupted trade, the tanning industry has been forced to economize and substitute. Eighteen months or so ago, the supply of chrome tanning agents seemed threatened. Industry's attention was turned to conservation and substitution. Research was directed toward the development of iron or zirconium tannages as substitutes.

Fortunately, the chrome situation eased due to adequate development of low grade domestic chrome ores. However, out of these war-time research efforts, processes of peace-time value may arise, for a real iron tannage has been developed.

Similarly, the situation with respect to vegetable tanning agents has been equally tense. Extensive study has been made of possible increased domestic supplies of natural tannins. Even more interesting to the chemical profession are current research efforts to develop suitable manufactured or synthetic organic tanning agents as replacements for natural vegetable tannins.

The European tanners are said to have available synthetic tanning agents comparable in quality to natural tannins. Regardless of the European picture, research in this country today is yielding results which may lessen our dependence upon world-wide sources of vegetable tannins.

Maximum serviceability is, of course, the desired goal in leather, and in war times, when leather is scarce, this becomes critical. Moreover, because of the abnormal conditions encountered, military and heavy-duty leathers may fail due to stresses which would never be encountered in normal wear. This is especially significant in shoe leathers, where hard abrasive wear, along with wet wear, is a familiar combination to which heavy-duty shoes are subjected.

These conditions may cause so much decrease in serviceability that special processing is necessary. Lubrication of the leather, using an oil formula compounded from high viscosity oils for increased retention during wear, is one way of lessening this decreased service-

ability. This is effective in two ways. First, the water resistance of the leather is increased, so that the harm of wet wear is minimized; furthermore the lubricated leather fibers can take the shock of hard abrasive wear better than fibers with a lower oil content.

If preservative agents are also incorporated into this type of formula, we can produce a leather with increased mold and mildew resistance, water-proofness, and wear resistance. Thus, leather chemistry can increase the serviceability of leather under difficult conditions.

Today, we see new developments in the field of plastics and synthetic elastomers. When the war emergency is over, the plastics and the elastomers developed to meet war necessities will be considered for many peace-time uses. The uses made of leather have been enviously eyed by modern manufacturers of synthetics. One may well inquire as to the future competition of the leather industry.

The leather industry is aware of these possibilities of the post-war era. Research programs are being outlined so that information will be available to produce leather of maximum serviceability for each of the varied uses which leather enjoys. The outcome will be dependent in a large measure upon the ability of the leather industry to continue to produce a versatile, serviceable product at a lower real cost than its competitors. This will require the best efforts of the technical men of the industry.

**Chemist Deferment**

**Procedure Revised**

The War Manpower Commission has empowered the U. S. Employment Service Offices to be the judges whether appeals of registrants engaged in professional, technical, and scientific work are to be referred to the National Roster of Scientific and Specialized Personnel for advice. Heretofore such appeals to the National Roster could be made directly by the employer.

Walter J. Murphy, F.A.I.C., spoke on "The Chemist's Responsibility in War and Peace", before a recent meeting of the Dayton Section of the American Chemical Society.

# Chemistry in the Basic Army Specialized Training Course

**Martin Meyer, F.A.I.C.**

*Brooklyn College, Brooklyn, N. Y.*

THE basic Army Specialized Training Program contains two courses in general or inorganic chemistry. This fact has so far received little published attention from chemists. Yet the training of chemists and the content and teaching of courses in chemistry is a matter of concern to chemists, and not only to teachers of chemistry.

Chemists in every grade of commercial work have a direct and practical interest in it, of which they should be aware. If there is any well established fact of experience, it is that there is a probability that any person with any chemical training whatever may appear as a candidate for a chemical position, with the self-assigned label of "chemist". If such a person does, he immediately presents problems related to competence, salary scales, and standards for all other chemists. That is certainly a statistically true and important fact.

If currently released official figures are reliable, there are at present 100,000 such potentially budding chemists, with the predicted certainty of many thousands more, in the A.S.T.P. This is a number comparable in magnitude to estimates of the total number of chemists in the United States. The nature of the basic work they are being given is therefore of more than casual interest.

Many of our leading colleges and universities are now participating in this work. Indeed it would be difficult, if not impossible, for them to do otherwise for many reasons. Not the least of such reasons is that it is not easy to criticize, in an adverse sense, such work. It would be so easy to bring the charge of non-cooperation with the war-effort against anyone who had the temerity to do that. No one desires to leave himself open to such a charge however baseless it may be. But there are important educational problems involved relating to content and purpose.

Since chemistry is an intensely practical science, there are also possibilities of objective study and evaluation. In fact, such things have already in the past received a

considerable amount of careful attention. Much available evaluation appears to have been completely ignored.

According to the current bulletin of official information (dated April 9, 1943), the basic A.S.T.P. provides for two courses in chemistry known as Chemistry AST-205 and 206, to be given in the first two of the three periods of the program. The bulletin elaborates the topical content of the courses. It may be said to indicate approximately the same ground as that covered during the usual college introductory course in general chemistry of one academic year duration. In support of that inference, it names four textbooks which, it states, are suggested but not required. All of these books are unquestionably of the highest quality of academic work, and two of them are among the top few of the most widely used texts for such courses.

One should conclude, and a chemist would view it with approval, that the work would be of satisfactory and even of high quality. Examination of details, however, raises some very important questions which remain unanswered. After outlining the course, the bulletin goes on to state, "The emphasis to be given the above items would be determined in the light of the content of the physics courses given in the basic phase." What this cryptic remark means is not further elucidated. Now while college teachers know that the general question of overlapping is an important one with respect to the college curriculum, it is new to the writer (whose experience in college teaching is now longer than he cares sometimes to recall) that there is any serious overlapping between the usual college chemistry course and the introductory physics course. Referring to the bulletin as a guide, one does find that there are some half dozen topics listed in both the physics and chemistry outlines which have words in common, e.g. the gas laws. But does the official direction mean that such topics are to be specially emphasized or that they are to be entirely omitted from chemical consideration? There is no indication.

More important, the question of time, always a serious one in chemistry courses, comes up. The average New York City high school giving a course in general chemistry requires about 200 hours of work during the year. College practice varies. A median value would be about 250 hours (eight hours per week) for the academic year. The A.S.T. program calls for a twelve week "semester" and provides three periods per week during the first term and six periods per week during the second, or a maximum of 108 hours of work for the "year."

In other words, a group of students (who will have had on the whole no previous chemical experience, and may even be seriously deficient in the level of general educational attainment) is expected to do in less than fifty per cent of the usual time the same work that college students, with a year of high school chemistry and collateral training of other kinds, has hitherto found difficult enough so as to require their best efforts for creditable performance.

That is a degree of acceleration which has not yet been attained anywhere. One is inclined to raise not only the question as to whether it is practically possible, but in view of the problem, is it possible to achieve any results of any chemical significance whatever?

Then there arises the problem of laboratory work. Chemistry AST-205 assigns three periods per week with a certain optional latitude in what they are to be devoted to, that is lecture or recitation, but definitely, in any event, prescribes no laboratory work. Chemistry AST-206 provides three hours per week of laboratory work. In the total course there is, therefore thirty-six hours allocated to laboratory work, some of which must necessarily be lost in the organization necessary to the distribution of equipment and supplies at the opening and close of the course. Again by way of comparison, the average New York City high school requires about forty hours of laboratory work.

The college differential is here even more impressive for it is usually accepted that it is the quality of the laboratory work which is the outstanding mark of a college grade course. A college median would certainly not be less than 150 hours of laboratory work, with many colleges requiring much more.

No matter what acceleration factor is used to multiply the allotted time, provided it be based on anything actually being accomplished, the product could not even approximate college grade work. For all practical purposes it might be said that this course includes no laboratory work. Now chemistry has, of course, been taught without laboratory work, but not in the last fifty years. The writer knows of no college at present, and very few high schools, which attempt to give chemistry courses with as small an amount of laboratory work as this.

The attempt has been made here merely to underline some of the major features of the A.S.T.P. plan with respect to chemistry, other professional and pedagogic problems have been intentionally avoided. Some of them are nevertheless very obvious in the situation—questions as to how the time actually allotted is spent; questions as to the nature of the staff about which there are vari-

ous local problems; questions as to the extent to which the direction of the educational process is under the control of chemically competent people, and others.

Briefly, the writer desires to raise the following questions which, he believes, merit and require immediate general attention:

1. Can this A.S.T.P. work be regarded as the equivalent even of a high school course in chemistry?

2. What useful purpose, war-related or otherwise, is achieved by requiring soldiers to take the course as outlined?

3. If people complete this course, and then decide to continue in chemical work, at what point shall they be required to continue?

4. If this course continues to be given, should its title be changed from chemistry to something else, perhaps, General Science or Chemical Science, so that students should not be under the misapprehension that they have begun a course which leads to their becoming chemists?

Others will occur to the reader, or at least that was the hope of the writer in setting forth his views. He has arrived at some tentative answers to the questions, and thus far has not found himself in too great disagreement with others with whom he has discussed the matter.

# What Have We to Lose

**Otto Eisenschiml, F.A.I.C.**

THE *Chicago Journal of Commerce* in an editorial of October 4, 1943, captioned, "A Post-war Dream," had this to say about post-war chemists:

> "Synthetic chemistry will put the rubber tree out of business. Who will put the synthetic chemists out of business? Why, the mass spectrometer, of course. It can do the work of a dozen chemists."

Now, the *Chicago Journal of Commerce* is a high grade paper and should know more about chemicals and chemistry than the average newspaper. Yet, what it wrote of the work that our profession is called upon to do, is a complete misconception and, from such a source, comes somewhat as a shock.

Obviously, we chemists have utterly failed to picture ourselves to the public in the right manner. According to the understanding of this editorial writer, we are all analysts. He thinks that synthetic rubber, plastics, octane gas and penicillin—to mention only a few headline items of our present situation—are worked out by instruments, such as thermometers, spectroscopes and the like.

Neither brains nor inventive gen-

ius are needed. If you buy yourself a balance, a few bottles of reagents and a spectroscope, some valuable finished product will roll off at the other end of the table without any further efforts on your part. The more spectroscopes, the more, and presumably the better products.

Following our editor's line of reasoning, the physician is going to be put out of business by new instruments. The lawyer will go on the skids through more law books. And who is going to take the place of the editorial writers? Mass production of typewriters or, mass employment of copy boys?

The chemists of Chicago have not taken this editorial lying down. Hilton Ira Jones, chairman of the Chicago Section of THE AMERICAN INSTITUTE OF CHEMISTS, wrote a letter to the *Chicago Journal of Commerce* telling them that he was greatly pained at the story of the mass spectrometer. To him it seemed to carry the unhappy implication that chemists were still regarded primarily as analysts, when as a matter of fact they were synthesizers, who not only duplicated the products of nature, but made better products in many cases. He added that every chemist in the United States would resent the editorial keenly. Perhaps it did pain many chemists in the United States, but how is the editor to become aware of this, unless we let him know?

A wise statesman once said that every nation has the government it deserves. He might have added that every profession has the reputation it deserves. If the editorial in the *Chicago Journal of Commerce* were an isolated instance, it could be overlooked, but every careful reader of the current newspapers and magazines knows that similar errors of omission and commission abound.

Our newspapers frequently take polls on public questions, but how often has anyone seen the name of a chemist among those interviewed? Lawyers, bankers, advertising men, soldiers, politicians and truck gardeners, they all have their say, but nary a chemist is asked for his opinion. So long as we seem satisfied to keep to the sidelines, the editors will feel that they are doing the right thing, and who can blame them?

Would it not be a good idea for every chemical organization to have a publicity department that knows how to fight? Let our publicists subscribe to clipping services so as to catch all statements and misstatements made about the work of our profession. Let them get reports of every newspaper poll taken. Then let them go to their typewriters and fire their protests at the editors. What have we got to lose?

# Chicago Chapter Honors Koch

The Chicago Chapter of THE AMERICAN INSTITUTE OF CHEMISTS held a testimonial dinner October first, at the Morrison Hotel in Chicago, for Dr. F. C. Koch, former head of the Department of Biochemistry of the University of Chicago. Dr. Koch was selected because of his outstanding contributions to the field of endocrinology.

The principal speakers were Dr. Edward A. Doisy, of the School of Medicine of St. Louis University, Victor Conquest, director of research of Armour and Company, and Dr. George K. K. Link of the University of Chicago.

Dr. Hilton Ira Jones, chairman of the Chicago Chapter, presided. At the conclusion of the program, Dr. Egloff presented Dr. Koch with a plaque to commemorate the occasion. Excerpts from the talks are given below.

## The Scientific Work of Dr. Koch

*Dr. Edward A. Doisy*

Dr. Koch's early papers were on the hormone of the thyroid gland and the hormones produced in the gastro-intestinal tract. Subsequently, he contributed to the study of the gonadotropic and the female sex hormones but his outstanding contributions were in the male sex hormone field—a field which he and his associates pioneered and established as a division of endocrinology on a sound scientific basis.

Subsequently, Koch and his associates studied the elimination of the male sex hormone and of the female sex hormone of normal men, normal women, and of men with endocrinological disorders. . . . His papers on vitamin D are important scientifically and were published in collaboration with his wife . . . The Kochs showed that cholesterol from which ergosterol, later revised to 7-dehydrocholesterol, had been completely removed, could still be activated to give a product which possesses vitamin D activity. In this work, they used a quartz spectrograph to detect ergosterol and dehydrocholesterol, thereby becoming one of the pioneer groups of biochemists who used ultraviolet light as a tool for the solution of biochemical problems.

## The Industrial Significance of Dr. Koch's Work

*Victor Conquest*

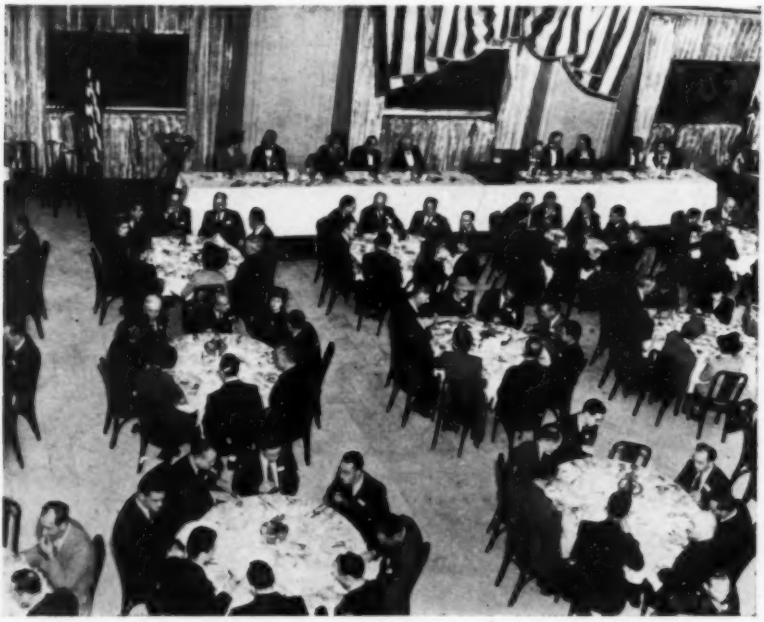
Over the years Dr. Koch's influence on industry has been very great. These contributions cover three definite spheres. The first and most easily remembered would be the utilization of facts developed through Dr. Koch's

researches, directly in biochemical products and processes . . . The second sphere of influence of Dr. Koch is through his training of a large group of teachers of biochemistry . . . The third sphere of influence is one which industry sees most easily and for which it holds Dr. Koch in the highest regard. This is the group of graduates from his classrooms that have chosen to go into industrial work.

## Personal Glimpses of Dr. F. C. Koch

*Professor George K. K. Link*

After graduation from and teaching at Illinois, he became chemist with Armour and Company and interested himself in the role and chemistry of internal secretions, enzymes, and phospholipins. Later these interests carried him to the University of Chicago. He entered its graduate school as candidate for the Ph.D. degree in the department then known as physiology . . . After receiving the Ph.D. degree he succeeded Waldemar Koch as assistant in physiological chemistry and developed its courses to a high level . . .



# Our Research in Biochemistry

F. C. Koch, F.A.I.C.

*(Response of Dr. Koch at Testimonial Dinner)*

THIS evening's event really is a tribute to those of my colleagues whose cooperation made some of our investigations possible and in particular to those students whose doctors' dissertations I had the privilege and pleasure to direct. It seems to me very fitting that I should here acknowledge their part in the work and refer in more detail to the investigations of some of them.

During my thirty years of graduate teaching at the University of Chicago, I directed the research work of fifty students who received the doctorate in biochemistry and a smaller number of master's candidates. Of the fifty doctors, twelve also received the M.D. degree, twenty-five entered University teaching positions, fourteen remained in investigative work and one is now a University president.

The work on gastrin and secretin would never have been done by me without the cooperation by my colleagues Drs. A. B. Luchardt and R. W. Keeton. To Professor Carl R. Moore we are indebted for his advice and cooperation in the mammalian aspects of the early work on the male sex hormone as well as for his moral support on the problem. In the studies on sex hormone excretion in man we are indebted to Dr. G. F. Dick's moral support and Dr. A. T. Kenyon's active cooperation in the Department of Medicine, Billings Hospital.

Before discussing some of the more important contributions by the graduate students I should acknowledge for many of them and for myself our appreciation for the financial aid extended to us by special grants from foundations and from the industry directly. The studies on male sex hormone were initiated by a fellowship financied by E. R. Squibb and Sons and later extended to a large project through liberal grants from the National Research Council, Rockefeller Foundation and Abbott Memorial Fund.

I am certain that we owe much to Professor Frank Lillie in connection with grants from the National Research Council. He was keenly interested in the problem and

gave us the moral support when most needed. The investigations on vitamins were supported from time to time by the Fleischman Company, Mead Johnson and Co., Park, Davis and Co. and the American Medical Association.

Our studies on the fractionation of the pituitary hormones were financed by the John D. Herz Fund and by grants from Armour and Company. Armour and Company have also contributed liberally for investigations on pernicious anemia, thyroid and steroid problems. For all of these we wish to repeat our sincere appreciation at this time.

In the field of vitamins, I wish to emphasize the work of Professor Roger J. Williams on the water soluble B complex and the studies by Mrs. Koch, Dr. M. Hathaway and Dr. A. R. Potts on Vitamin D. During the first world war, yeast production was seriously lowered through changes in the composition of the mash for the yeast growth. The problem assigned to Williams was to determine what nutrients and stimulants were lacking in the modified medium.

He solved the problem by a unique quantitative method for studying the rate of yeast growth in synthetic media and concluded that the new mashes required the addition of what we now call vitamin B complex. He at that time thought that it was identical with water soluble $B_1$ or what we now call thiamin. His findings and methods were probably of much greater importance from a fundamental point of view than as a contribution to the war problem.

I say this because when he continued his investigations by his assay method, he showed that there are many substances which act as stimulants in yeast growth and in the growth of various microorganisms. He thus led to two important ramifications in the vitamin field namely, microbiological methods for the assays of various water soluble factors and to his discovery and isolation of at least two new vitamins, pantothenic acid and folic acid.

As to the vitamin D problem, Mrs. Koch independently showed that the irradiation of commercial cholesterol produces vitamin D. In her later studies and in the confirmation by Drs. Hathaway and Potts it was shown that highly purified cholesterol can by proper heat treatment be converted into a provitamin D which is not identical with ergosterol or 7-dehydrocholesterol and yet yields on irradiation a product which biologically is similar to vitamin $D_3$. Thus, they contributed valuable data on the problem of the various kinds of provitamin Ds and their quantitative biological specificities.

In the field of enzymes, the doctorate work by T. L. McMeekin, Milnor Freeland, Oscar Helmer and R. W. Bates should be referred to. McMeekin and Freeland by specific adsorption on egg white fractionated commercial pepsin to yield amorphous products which were twenty to fifty times as active as the 1:3000 U.S.P. product and two to four times as active as Northrop's crystalline pepsin.

Very recently this has been confirmed by Miss Borgstrom and she has also shown that by the same adsorption procedure one can obtain equally active products from Northrop's crystalline pepsin. These findings are very suggestive as to the possible nature of the active group of pepsin.

The work by Helmer and Bates, done independently, definitely proved that the activation of trypsinogen by enterokinase is a catalytic reaction and not non-catalytic as claimed by Waldschmidt-Leitz and Willstatter.

I should add that McMeekin since leaving Chicago has contributed much on the anti-anemia liver factor, on the physical chemistry of amino acids, and on methods for the purification of proteins in work with Professor Cohn at Harvard. Likewise Oscar Helmer did some pioneer chemical work on chicken sarcoma at the Rockefeller Institute and is now an active collaborator with I. H. Page in the renin-hypertensin or renin-angiotonin system obtained from kidney tissue and blood plasma. Bates has taken a very active part in the studies by Oscar Riddle *et al* at Cold Spring Harbor on pituitary hormones, but especially on the prolactin or mammatropic factor.

In the endocrine field I should refer to the unpublished work by L. Curlin on the *in vitro* formation of thyroxin from iodized casein or diiodotyrosin. He has proven quite conclusively that the thyroxin is formed from the diiodotyrosin and not from a thyronine unit in the casein molecule.

On the anterior lobe of the pituitary we should recall the early work of Dr. Z. Wallen Lawrence in differentiating between two kinds of gonadotropins; the work by John Evans, Roger Varney and Leonard Hines on assay methods for gonadotropins and thyrotropin and the fractionation studies (unpublished) by Dr. Hayes.

Incidentally, Dr. Hayes also carried out in cooperation with Dr. Last extensive investigations on attempts to develop an assay method for the liver anti-pernicious anemia factor. Excellent work has also been done by Drs. Potts and Gallagher on the separation of the blood pressure raising and the oxytocic factors found in the posterior lobe of the pituitary gland.

The work on the male sex hormone was started in 1925 by L. C. McGee as a Squibb fellow. After about one year of hard work, he finally accomplished what many had tried but always with failure namely to obtain a fraction from bull testicle which should produce in a castrated animal what we had reason to believe the hypothetical male sex hormone does in the normal animal. Thus, in the capon it should cause comb growth or in the castrated mammal it should cause regneration of the atrophied accessory sex organs, such as the seminal resicle or prostate. Why had others failed? Simply because other investigators either did not extract properly or did not fractionate sufficiently to enable them to inject daily per capon the equivalent of approximately ½ pound of fresh testis tissue.

I confirmed McGee in every way, and Gallagher next developed a good quantitative assay method on the capon. With this tool and with the extraction of tons of tissue or gallons of urine, real progress was made in the purification of the concentrates in various laboratories. Although we were not the first to obtain any of the male hormones in pure form we did develop the first methods evolved, and at the same time turned our attention to quantitative studies on the urinary excretion of male hormones in normal and diseased men and women.

These pioneer studies in the light of recent developments promise to yield considerable fundamental information on the metabolism and origin of the steroid hormones of testicular, ovarian and adrenal origin. The biochemist can now say more than ever that urine is the golden fluid or biochemically speaking a real gold mine. This extensive program on urinary steroids covered the period from 1931 to 1941 when I left the University on account of retirement.

In this ten year period Dr. Gallagher and I had associated with us Drs. A. T. Kenyon and Katherine Knowlton in the Department of Medicine and as graduate students from time to time Drs. D. Peterson, J. R. Coffman, W. H. Hoskins, R. I. Dorfman, E. B. Womack, Carter Johnston, Paul Munson, Messrs. Beach and Holtorff and a number of very faithful technicians.

Before closing I should refer to the excellent piece of work on the effect of feeding red corpuscles, vitamins and tryptophane on the rate of regeneration of hemoglobin in the rat by George Cartland. Although the results were negative the necessity of developing a blood volume method for the rat called for a very careful technique.

Also I wish to emphasize the excellent investigations he has carried out at the Upjohn Laboratories on

estrogens obtained from pregnant mare urine, on the purification of the mare serum gonadotropin and on concentrating and fractionating the adrenal cortex principles.

To you and to all of these other colleagues I again express my sincere thanks.

## Concannon Chilian Chemical Advisor

C. C. Concannon, F.A.I.C., chief of the chemical unit of the Bureau of Foreign and Domestic Commerce, will leave soon for Santiago, Chile, to act as consultant and adviser to the government on the development of chemical industries in that country.

After spending three months in Chile, Mr. Concannon will have headquarters at the Corporacion de Fomento de la Produccion de Chile, 120 Broadway, New York, N. Y. A part of his work will be to bring together American concerns and Chilean groups desiring to share in financial participation in mutual undertakings in Chile.

## Application for Charter

INSTITUTE members in the Baltimore area have applied for a charter for a chapter in this district. An organization meeting of these members was held at Loyola College on October 28th, at which Dr. Egloff, president of the INSTITUTE, spoke on "Oil and the War", and also outlined the policies of the INSTITUTE.

Mildred A. Johnson, A.A.I.C. formerly with the Steffen Biological Laboratories, has joined the Killian Research Laboratories, Inc., New York, N. Y.

### Institute Members Honored By Alpha Chi Sigma

Institute members initiated into the New York Professional Chapter of Alpha Chi Sigma Fraternity at its recent meeting were Drs. Marston T. Bogert, Charles R. Downs, and Robert J. Moore.

## A.I.C. Chapters in Ohio and California

TWO new chapters of THE AMERICAN INSTITUTE OF CHEMISTS have been formed, one in Ohio and the other in California. The Ohio charter was granted in the name of the Miami Valley Chapter, and the California charter was issued in the name of the Los Angeles Chapter.

# You and the Future

**Raymond Szymanowitz, F.A.I.C.**

WHEN a river goes on a rampage that threatens to inundate the communities along its banks, appeals for assistance in stemming the flood are broadcast. The volunteers responding are not queried about their experience with dikes, nor are they asked how fast they can fill sandbags. Instead, all hands are put to work in a united effort doing whatever possible to meet the emergency.

Similarly, when a nation or a group of nations jump the traces and attempt to conquer their neighbors, as is presently the case, the endangered peoples organize to resist the aggressor. Everyone is urged to take employment at his highest skill in a plant contributing to the war effort.

Individuals engaged in the production of civilian commodities are implored to transfer their energies to the making of essential goods. Companies suffering a dearth of skilled labor conduct intensive training courses in an effort to fill the gap. Schools are combed for eligibles by persuasive representatives of industry. Manufacturers even resort to the use of radio programs for the purpose of luring housewives from their kitchens.

With the demand for labor greater than the supply, the problem of securing a job no longer exists. Gone, too, is the necessity of bartering for satisfactory remuneration. It follows that so far as selling one's services is concerned, the element of competition is temporarily a thing of the past — only temporarily, though, as floods and wars are abnormalities and individuals, like businesses, must make plans for the post-war period.

With the coming of peace, when one must again compete for his place in the sun, what have you to sell?

Since we are involved in a scientific war, the current need for technical help is especially great in applied physics and chemistry—fields for which adequately trained personnel is limited. Under these conditions it is neither difficult nor unusual for many individuals now engaged in these pursuits to acquire an exaggerated view of their importance. The assumption of such an attitude unfortunately can easily lead to the building of false confidence in one's future security.

After the war has been won and industry goes through the transition period which always follows a great conflict, company staffs must be

pared. Should you be one of the unfortunates destined to be cast adrift, what have you to offer a prospective employer? What qualities do you possess that will give you an advantage over your competitors? In other words, what have you to sell?

The enumeration of your college courses and experience in the war industries will not be enough. There will be plenty available with the same qualifications. If a comparison can be made with chemistry itself, you might be likened to an element which, though useful, is abundant. To continue the analogy, the requirements in the post-war world will be for materials possessing special properties or for synthetics that have been custom built for a peculiar need.

The years of study which one has devoted to his profession need not be sacrificed. An alternative with promising potentialities is to complement scientific training with a second line of endeavor. Just as unusual combinations in chemistry are capable of producing materials having qualities of extraordinary value, so may widely different talents when combined in the same person produce an individual of unusual worth. Should chemistry alone hold no future for you, with what other skill or aptitude could you combine it to make your position unique?

Those who are adept at writing might cultivate this ability with a view to becoming a writer on scientific subjects—a translator of technical jargon into lay English. A course in marketing or publicity might open the door to a career in advertising, such as a writer of technical copy. Supplementary training of this kind might also suggest entrance into sales and service engineering.

A knowledge of law, like mathematics, is a useful tool in many occupations. A chemist well-versed in this field might consider for his life work such callings as patent attorney, patent examiner, expert in patent cases, etc.

Chemical training is desirable in certain types of personnel work—particularly those branches involving safety engineering and accident prevention.

There are, of course, other combinations which are not predictable. To uncover and utilize them must depend upon personal initiative. Inasmuch as the purpose of this article is but to sow a seed, sufficient examples have been set forth herein to point the way.

What special knowledge do you possess and how may it be employed in conjunction with your scientific background? Again, what have you to sell? Now is a good time to take inventory.

# COUNCIL

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*Vice-president*, Donald Price
*Secretary*, Howard S. Neiman
*Treasurer*, Frederick A. Hessel

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*Niagara*
A. W. Burwell

*Philadelphia*
J. M. McIlvain

*Washington*
T. H. Tremearne

*Chicago*
Howard Adler

*Miami Valley*
Harvey G. Kittredge

### October Meeting

A meeting of the National Council of The American Institute of Chemists was held on Thursday, October 21, 1943, 52 East 41st Street, New York, N. Y. at 6:30 p.m. President Egloff presided.

The following officers and councilors were present: Messrs: S. R. Brinkley, G. Egloff, H. L. Fisher, R. J. Moore, D. Price, F. D. Snell, A. L. Taylor and M. Toch. Mr. T. S. McCarthy and Miss V. F. Kimball were present.

The minutes of the previous meeting were approved.

Dr. Egloff read a petition for the grant of a Charter to a Chapter in the Los Angeles area, signed by members of the Institute in that section, and upon motion made and seconded, this new Chapter was cordially welcomed into the Institute.

Dr. Egloff read a petition for the grant of a Charter to a Chapter in Ohio, to be known as the Miami Valley Chapter of the Institute,

and upon motion made and seconded this new Chapter was cordially welcomed into the INSTITUTE.

Upon motion made and seconded, the Secretary was instructed to inform the Miami Valley Chapter that its proposed constitution and by-laws are approved by the Council, with the exception of several minor changes which are referred to this Chapter for further consideration.

Dr. Egloff stated that he will meet with the members of the INSTITUTE in the Pittsburgh area on November 14th.

Upon motion made and seconded, the present application and reference forms, which are to be reprinted, were referred to the Committee on Qualifications and to the Membership Committee for suggested revisions.

Upon motion made and seconded, the following new members were elected:

*LIFE MEMBER*

**Udy, Marvin J.**
(L.1943), *Vice President in Charge of Research and Development,* Chromium Mining and Smelting Corporation, Sault Ste. Marie, Ontario, Canada.

*FELLOWS*

**Coleman, Anna M.**
(1943), *Fellowship Assistant,* Mellon Institute of Industrial Research, Pittsburgh 13, Penna.

**Corbin, Nancy M.**
(1943), *Research Chemist,* Universal Oil Products Company, Chicago 4, Illinois.

**D'Alelio, Gaetano F.**
(1943), *Director of Research,* Prophy-lac-tic Brush Company, Pine Street, Florence, Mass.

**Ewell, Eugene R.**
(1943), *Chemist,* The Lowe Brothers Company, Dayton, Ohio.

**Fisher, John Roberts, Jr.**
(1943), *Research Chemist,* Chemical Developments Corporation, 314 West First Street, Dayton, Ohio.

**Hanson, Benjamin R.**
(1943), *Assistant Director of Technical Service,* The Lowe Brothers Company, Dayton, Ohio.

**Hatfield, Leonard F.**
(1943), *Research Chemist,* The Lowe Brothers Company, Dayton, Ohio.

**Koch, Fred C.**
(1943), *Director of Biochemical Research,* Armour and Company, 1425 W. 42nd Street, Chicago, Illinois.

**Lower, Stewart E.**
(1943), *Director of Technical Service,* The Lowe Brothers Company, Dayton, Ohio.

**Waldie, William A.**
(1943), *Technical Director,* New Wrinkle, Inc., 314 West First Street, Dayton 9, Ohio.

**Wendt, Gerald**
(1943), *Science Editor,* Time Magazine, New York, N. Y.

**White, Edward A.**
(1943), *Instructor* Department of Chemistry, Fordham University, New York, N. Y.

**Woodson, Harold W.**
(1943), *Assistant* in Department of Physiological Chemistry, College of Medicine, University of Illinois, Urbana, Illinois.

**Ziegler, Lena R.**
(1943), *Patent Chemist,* Chemical Developments Corporation, 314 W. First Street, Dayton 2, Ohio.

*MEMBERS*

**Bauser, Clyde E.**
(M.1943), *Paint Technician,* The Lowe Brothers Company, Dayton, Ohio

**Gakenheimer, Walter C.**
(M.1943), *Research Chemist,* Minerec Corporation, 3508 Fairfield Road, Baltimore 25, Maryland.

**Hegyi, Imre Joseph**
(M.1943), *Chemist,* Baker and Company, 113 Astor Street, Newark, N.J.

**Landrum, Leslie Harold**
(M.1943), *Research Engineer,* Chemical Developments Corporation, 314 W. First Street, Dayton 2, Ohio.

**Spiegler, Madge M.**
(M.1943), *Research Bibliographer,* Universal Oil Products Company, Chicago 4, Illinois.

**Strickland, Elizabeth D.**
(M.1943), *Research Chemist,* Chemical Developments Corporation, 314 West First Street, Dayton 2, Ohio.
*Raised from Student to Member*

**Schachtmeister, Sydney C.**
(M.1943), *Student* (Sergeant) Army Specialists Training Unit, Oregon State College, Corvallis, Oregon.
*Raised from Juhior to Fellow*

**Catherman, Clair C.**
(1943), *Assistant Chemist,* Pine Bluff Arsenal, C.W.S., Pine Bluff, Ark.

Dr. Price reported on his visit with the Niagara Chapter.

THE CHEMIST was discussed, and suggestions were offered for possible articles to appear in it.

There being no further business, adjournment was taken.

## Applications for Membership

*For Fellows*

**Cooke, Theodore F.**
*Captain,* Corps of Engineers, The Engineer Board, Fort Belvoir, Virginia.

**Gelman, George**
*Captain,* Quartermaster Corps, Quartermaster Corps Subsistence and Research Laboratory, 1819 West Pershing Road, Chicago, Illinois.

**Grim, John Marshal**
*Research Chemist,* Koppers Company Fellowship, Mellon Institute, Pittsburgh, Pennsylvania.

**Oswald, Richard K.**
*Chemist,* Lowe Brothers Company, E. Third St., Dayton, Ohio.

**Stern, Edward**
*Medical Laboratory Technician,* U. S. A. Medical Department, 967th Medical Hospital Ship Platoon, Camp Kilmer, New Jersey.

**Tubis, Manuel**
*Assistant Chemist,* U. S. Food & Drug Administration, Custom House, Philadelphia, Penna.

*For Member*

**Front, Jacqueline S.**
*Assistant Fellow,* Mellon Institute, 4400 Fifth Avenue, Pittsburgh, Pa.

*For Associate*

**Kahn, Gloria C.**
*Chemist,* Standard Oil of California, Richmond, California.

# CHAPTERS

## Chicago

*Chairman,* Hilton I. Jones *Vice-chairman,* H. R. Kraybill

*Secretary-treasurer,* Charles L. Thomas

Universal Oil Products Company
Riverside, Illinois

*Council Representative,* Howard Adler

A meeting will be held on December third at Huylers Restaurant, 310 South Michigan Avenue, at 6:30 p.m. The program will begin at 7:45 p.m. Speakers are, Dr. Victor Conquest, "Fifteen Years of Interviewing Applicants for Positions in a Packing Plant"; Tom Coffer, "The Professional Employment Agency"; M. T. Carpenter, "Petroleum Chemists and Chemical Engineers"; and on the subject "Being Interviewed for a Position" two students from Illinois Institute of Technology, J. T. Weber and H. H. Pokras, will give their impressions.

## Miami Valley

*Chairman,* E. L. Luaces *Vice-chairman,* J. M. Purdy

*Secretary-treasurer,* John R. Fisher, Jr.
Chemical Development Corporation
314 W. 1st Street, Dayton 2, Ohio
*Council Representative,* Harvey G. Kittredge

The first business meeting of the new Miami Valley Chapter of the INSTITUTE was held October thirtieth, at which the constitution and by-laws of the Chapter were adopted; officers and a representative to the National Council were elected; and the territory to be included within the Chapter was determined. Newly elected officers are shown above.

## Niagara

*Chairman,* Maurice C. Taylor *Vice-chairman,* Lawrence H. Flett

*Secretary-treasurer,* M. R. Bhagwat
1104 Ferry Avenue
Niagara Falls, New York
*Council Representative,* Arthur W. Burwell
*Alternate,* Lothar A. Sontag
*Reporter to* THE CHEMIST, Frederick Koethen

## New York

*Chairman*, M. L. Hamlin *Vice-chairman*, Franklin H. Bivins

*Secretary-treasurer*, Lloyd W. Davis

National Oil Products Company
Harrison, New Jersey

*Council Representative*, A. Lloyd Taylor

Meeting November 19th. Building Trades Association Club, 2 Park Avenue, New York, N. Y. Dinner at 6:30. Guest speakers will include Dr. Charles Glen King and Harry B. McClure.

## Pennsylvania

*Chairman*, Clinton W. MacMullen *Vice-chairman*, Glenn E. Ullyot

*Secretary-treasurer*, Kenneth E. Shull

23 Bala Avenue
Bala Cynwyd, Pennsylvania

*Council Representative*, John M. McIlvain

## Washington

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### Kennedy with Wetherill Co.

James J. Kennedy, M.A.I.C., formerly with the Resinous Products and Chemical Company, is now research and development chemist with George G. Wetherill and Company, Philadelphia, Penna.

### Friedman in New Position

Harry Friedman, F.A.I.C., formerly technical director of the U. S. Kalsomine Company, is now technical director of Commercial Chemical Company, Kenilworth, N. J.

# Necrology

## E. H. Kessler

Dr. E. H. Kessler, industrial sales manager and consulting chemist for The Thresher Varnish Company of Dayton, Ohio, died suddenly of a heart attack on October 11. He was forty-five years of age.

Born in Dayton, August 17, 1898, Dr. Kessler received his education in the Dayton public schools and the University of Dayton. Receiving the B.S. in chemical engineering in 1920, the M.S. in 1928, and the honorary D.Sc. in 1928. He has been associated with the Thresher Varnish Company since 1921, serving in various capacities as chemist, industrial salesman, director of research, industrial sales manager and consulting chemist. He was a former president of the Cincinnati, Dayton, Indianapolis and Columbus Paint and Varnish Production Clubs.

He became a member of THE AMERICAN INSTITUTE OF CHEMISTS in 1937.

## Leicester Patton

Leicester Patton, chief chemist for the Balch Flavor Company, Pittsburgh, died recently. He was sixty years of age.

A native of Charlottesville, Virginia, Mr. Patton received the B.S. and M.S. from the University of Virginia. In 1906, he became an assistant chemist with West Virginia Geological Survey, and subsequently became chief of the U. S. Food and Drug Laboratories in Savannah, Georgia, and Buffalo, N. Y.; and superintendent of the Bureau of Food Inspection for the city of Pittsburgh and consultant for the Pennsylvania Department of Agriculture. Just before he became chief chemist for the Balch Flavor Company, Mr. Patton maintained consulting offices in Pittsburgh. He joined THE AMERICAN INSTITUTE OF CHEMISTS in 1937.

## Arthur Anderson Ticknor

Dr Arthur Anderson Ticknor, divisional chemist for Calco Chemical Division of American Cyanamid Company, died unexpectedly at his home in Plainfield, N. J. on September twenty-sixth. He was fifty years of age.

Born in West Claremont, New Hampshire, Dr. Ticknor received the Ph.B. from Yale University in 1914, and three years later obtained the doctorate from the same Institution.

He joined the chemical staff of Calco as research chemist in 1917, serving until 1920, when he became

research chemist for Tubize Artificial Silk Company, Hopewell, Virginia. He returned to Calco in 1924.

He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1925.

## SWPC Loan System Simplified

The Smaller War Plants Corporation of the government, on November first, put into effect a new loan system, whereby the corporation will enter into repurchase agreements with banks on loans of $25,000 or less, where banks agree to close and service the loans. Under this arrangement, the operator of a small business will apply for a loan of $25,000 or less to the SWPC loan agent in his district. The applicant and the SWPC loan agent then go to the bank, arrange for the loan, and the SWPC will enter into the repurchase agreement with the bank.

### Industrial Medical Problems Parley Held

A wartime conference on industrial medical problems was held for the company's plant physicians and executives by Hercules Powder Company, on November third and fourth, at the Hotel Netherland Plaza, Cincinnati, Ohio. Attending the conference were representatives of the Army, the U. S. Public Health Service, and several medical organizations.

## Soviet Science and and Technology Viewed

A Congress of American-Soviet Friendship was held at the Hotel New Yorker and Madison Square Garden, New York, N. Y., on November sixth to eighth. Dr Harold C. Urey was chairman of the section on "Soviet Science and Technology" held on November seventh at the Hotel New Yorker. Speakers were Sir Hubert Wilkins on "Soviet Exploration and Geography"; Dr. Carl O. Dunbar on "Advances in Soviet Geology and Mineralogy"; Dr. Charles E. Kellogg, "Soviet Soil Technology and Agriculture"; Dr. L. C. Dunn, "Soviet Research in the Biological Sciences"; Dr. Selman Waksman, "Bacteriology in the Soviet Union", and Dr. V. K. Zworykin, "Soviet Developments in Electronics." Dr. Walter B. Cannon, professor of physiology at Harvard University, was chairman of the section on "Public Health and Wartime Medicine in the U.S.S.R."

### Hercules Advances Weber

Paul J. Weber, economist and head of the economic research department of Hercules Powder Company, Wilmington, has been elected assistant treasurer.

# For Your Library

GLUE AND GELATINE. By Paul I. Smith. *Chemical Publishing Company*. 1943. 145 pp. 6″ x 9″. $3.75.

The wide application of glue and gelatine in so many industries, gives this new book a value to those who are interested in the production of widely varying materials.

The author has wisely avoided the intricate chemistry of his subject and has devoted himself to detailed accounts of the production of the final products from their origins, and continues to describe their usefulness and methods of application in the manufacture of many commercial products.

The book, therefore, will prove of the greatest value not only to the manufacturers of glue and gelatine, but equally to those who employ, or are considering to employ, those chemicals to advanced commercial use.

AN OUTLINE OF ORGANIC NITROGEN COMPOUNDS By Ed. F. Degering, F.A.I.C., Cary Bordenca, and B. H. Gwynn. *John S. Swift Company*. 1942. 381 pp. 6½″ x 9½″. $10.00.

The third edition of this book is an extended edition of the two previous editions published in 1938 and 1940; contains a very considerable amount of new material resulting from the research work upon these compounds during the intervening years, and is, undoubtedly, the most complete book upon this subject.

It covers the entire field of organic nitrogen compounds in greatest detail, the general properties and uses of each compound being followed by many methods for its production. An interesting and helpful feature of each described process of production is an accompanying formula of each step of procedure.

The grouping of the nitrogen compounds into the thirty-six chapters is most excellent and permits ready reference to any particular compound. A copy of this book should be found in the library of every organic chemist.

MODERN THEORIES OF ORGANIC CHEMISTRY. By H. B. Watson, F.I.C., *Oxford University Press*. 1942. 267 pp.

Because of the character of the subject, a brief but clearly informative statement is made of the relationship between the alliance of chemistry with physics and mathematics.

Less experienced chemists will find this book most helpful, and it will be found a valuable book of reference to those more advanced in this particular subject.

## Ipatieff Testimonial Volume Prepared

A book has been published by Universal Oil Products Company, Chicago, as a testimonial in honor of 3 milestones in the career of Vladimir N. Ipatieff, F.A.I.C. which were celebrated by a banquet given to him by THE AMERICAN INSTITUTE OF CHEMISTS, and by a banquet given by the employees of Universal Oil Products Company. The events celebrated on these occasions were Dr. Ipatieff's seventy-fifth birthday, his golden wedding, and his fiftieth year as an outstandingly useful member of the chemical profession.

### Plastics Lectures

The New York Institute of Finance is conducting a series of lectures on synthetic plastics on Monday afternoons in the Board of Governors room of the New York Stock Exchange.

## Booklets

*Bakelite Review*, published by the Bakelite Corporation, October, features "A New Process for Molding Resin-Bonded Plywood", and "Thin Vinyl Plastic Film".

*New York University Report of the Chancellor* for the year 1942-1943 has just been issued by New York University.

*The New York Journal of Commerce* has published a series of interviews with executives, entitled "Postwar Planning Now." This survey covers all phases of industry. Copies may be obtained by writing *The Journal of Commerce*, 63 Park Row, New York 15, N. Y.

Glyco Products Company, 26 Court Street, Brooklyn, N. Y. offers a copy of a chart, which lists a series of its new plasticizers and softeners for use in coatings, etc., free upon request.

Hercules Powder Company, Wilmington, Delaware, has issued a booklet reporting on the use of Lewisol maleates in protective coatings. These hard resins, made by modifying rosin esters with maleic alkyd compounds, are intended for compounding with film-forming materials or with drying oils to achieve gloss and hardness, and to improve adhesion. Copies of the booklet may be obtained upon request by mentioning THE CHEMIST.

Members of the INSTITUTE are requested to place THE CHEMIST on the mailing list of their companies for brochures and announcements which would be of interest to chemists.

## Cohoe Installed

### A. S. C. I. President

Wallace Patton Cohoe, F.A.I.C., was installed as president of the Society of Chemical Industry, an international organization with headquarters in London, at a dinner in the Waldorf-Astoria Hotel, New York, October 22nd.

Sir Gerald Campbell, British minister to the United States, presented to Dr. Cohoe the chains of office consisting of fifty-four links, each engraved with the name of a past president.

Also honored were Alexei Bach, Soviet biochemist, and Dr. Te-Pang Hou, Chinese industrial chemist, both of whom received honorary memberships. Dr. Bach was unable to attend because of wartime duties in Russia, where he helped found both the Karpov Chemical Institute and the Biochemical Institute. Dr. Hou, now in New York, is vice president and engineer in chief of Yungli Chemical Industries, Ltd. and was honored for his work in coordinating Chinese chemical industry.

### Chemical Exposition

**In N. Y. Dec. 6 to 11**

The Nineteenth Exposition of Chemical Industries will open at Madison Square Garden, New York, on December sixth, at two p. m. It will then be open daily from eleven a. m. to 10 p. m., until December 11, when it will close at six p. m. Admission is by invitation.

### Nobel Prizes Cancelled for 1943

The Government of Sweden has announced that Nobel prizes for peace, literature, physics, chemistry, or medicine, will not be awarded in 1943.

### W. N. Morris Weds

Miss Fern Arlene Looney, daughter of Mr. and Mrs. Walter Looney, of Cape Girardeau, Missouri, and William N. Morris, M.A.I.C., of St. Louis, were married September thirteenth, at the home of the bride's parents. The couple will reside in Brunswick, New Hampshire.

### Egloff Discusses Postwar

Dr. Gustav Egloff, president of the INSTITUTE, spoke on "A World at War and the Postwar Era", before a regional meeting of the Indianapolis, Anderson, Cincinnati, and Dayton Branches of The American Electroplaters Society, held at the Miami Hotel, Dayton, Ohio, on November sixth.

### Consulting Chemists Association Elects Officers

H. P. Trevithick, F.A.I.C., chief chemist of the New York Produce Exchange, was elected president of the Association of Consulting Chemists and Chemical Engineers, Inc., at their recent meeting. A. P. Sachs, F.A.I.C., was elected vice president; William C. Bowden, Jr., as secretary; and Henry M. Shields as treasurer.

### Meeting Dates

Nov. 14-16. American Institute of Chemical Engineers. Pittsburgh, Pennsylvania.

Nov. 17. National Council of THE AMERICAN INSTITUTE OF CHEMISTS. The Chemists' Club, 52 E. 41st Street, New York, N. Y.

Nov. 19. New York Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Speakers: Dr. Charles Glen King, "The Chemist's Place in Postwar Nutrition"; Harry B. McClure, "Newer Products of the Aliphatic Chemical Industry". 2 Park Ave. (26th Floor), New York, N. Y.

Nov. 26-27. Central Association of Science and Mathematics Teachers. Annual Convention. Palmer House, Chicago, Illinois.

Dec. 3. Chicago Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Subject: "The Chemist Interviews the Employer." Speakers: F. A. Anderson, Thomas Coffer, M. T. Carpenter, and Victor Conquest.

Dec. 6-11. Chemical Industries Exposition. Madison Square Garden, New York, N. Y.

Dec. 13. N. Y. Chapter. American Society for Metals. National President Meeting. Speaker Marcus A. Trossman, "Hardenability of Steel and the Effects of Alloys." 2 Park Avenue, (26th Floor, (New York, N. Y.

Jan. 10. N. Y. Chapter, American Society for Metals. Speaker, Wendell F. Hess, "The Welding of Aircraft Materials". 2 Park Avenue, New York, N. Y.

Jan. 14. New York Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. New York, N. Y.

Feb. 14. N. Y. Chapter, American Society of Metals. Speaker, C. E. Waring. "Fine Metal Finishes and Their Protection During Manufacture, Shipment and Storage." 2 Park Avenue, New York, N. Y.

Mar. 13. N. Y. Chapter, American Society for Metals. Speaker, C. G. Stephens, "The Inspection and Identification of Engineering Materials." 2 Park Avenue, New York, N. Y.

Mar. 17. New York Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. New York, N. Y.

Apr. 10. N. Y. Chapter, American Society for Metals. Speaker, J. C. Mathes, "Magnesium". 2 Park Avenue, New York, N. Y.

Apr. 12-16. American Chemical Society. National Meeting.

Apr. 14. New York Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Student Medal presentation.

May 8. N. Y. Chapter, American Society for Metals. Speaker, A. A. Schwartz, "Induction Heating". 2 Park Avenue, New York, N. Y.

May 12. New York Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Annual Business Meeting.

May 13. THE AMERICAN INSTITUTE OF CHEMISTS. Annual Meeting. New York, N. Y.

## Dr. Grebe Formally Receives S. C. I. Medal

The Chemical Industry Medal of the Society of Chemical Industry was presented to Dr. John J. Grebe, F.A.I.C., director of the physical research laboratory of the Dow Chemical Company, Midland, Michigan, at a joint meeting of the Society of Chemical Industry, the New York section of the American Chemical Society, and the New York Section of the American Institute of Chemical engineers, held in the Hotel Roosevelt, New York on November twelfth.

The award was made in recognition of Dr. Grebe's contribution to the solution of some of the difficult problems connected with the automatic control of chemical reactions. Ray H. Boundy, manager of the plastics division of the Dow Chemical Company, spoke on the personal side of the medalist. Dr. W. R. Veazey, research coordinator of the Dow Company, spoke on the medalist's accomplishments. The medal was presented by Dr. Lincoln T. Work, F.A.I.C. Dr. Grebe's acceptance address was on "Tools and Aims of Research."

## U. S.-British Building Methods Compared

The first fall meeting of the New York Building Congress, Inc., was held November third at the Hotel Astor, New York. Members of the British Four-Man Mission, sent to study construction methods and costs in the United States, compared observations of American methods with those of Great Britain. The mission consisted of Alfred C. Bossom, Sir George Mowlem Burt, Sir James Grey West, and Frank Wolstencroft.

### Chemist Available

Position as research chemist is desired in Burlington or Greensboro, North Carolina, or in New York City. Applicant is 25 years of age, single, 4F. Five years of college experience. Instructs in music, photography, and chemistry. Present residence, St. Albans, N. Y. Please reply to Box 111. THE CHEMIST.

## ADVERTISING INDEX

# *Objectives*

*of*

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■

**A. To educate the public to a better appreciation of the chemists' contribution to progress.**

■

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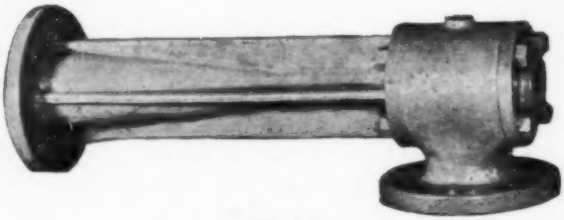

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## NATIONAL DEFENSE

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